

Claims:

We claim:

- 1 1. A method for estimating a channel impulse response in an ultra wide
2 bandwidth (UWB) system comprising:
 - 3 receiving a plurality of training sequences modulated at a chip rate;
 - 4 sampling each training sequence in parallel with multiple correlators
 - 5 at sampling rate substantially slower than the chip rate to obtain a plurality
 - 6 of samples for each training sequence; and
 - 7 estimating the channel over a time interval of the impulse response
 - 8 from the plurality of sample of the plurality of sequences at a resolution
 - 9 substantially equal to the chip rate.
- 1 2. The method of claim 1, in which each training sequence is passed through
2 n correlators to generate n samples for each correlator.
- 1 3. The method of claim 1, in which the sampling rate is at least ten times
2 slower than the chip rate.
- 1 4. The method of claim 1, in which the sampling rate is equal to a symbol
2 rate.
- 1 5. The method of claim 1 further comprising:
 - 2 estimating equalizer coefficients from the estimate of the channel
 - 3 impulse response.

- 1 6. The method of claim 1 further comprising:
 - 2 estimating weights for the corresponding correlators to acquire most
 - 3 of the available energy of a data signal received via the estimated channel.

- 1 7. The method of claim 1, in which a first subset of the samples are for a
2 rough estimate, and a second subset of the samples are used for an accurate
3 estimate based on the rough estimate.

- 1 8. The method of claim 1, in which the estimate is based on a previous
2 estimate of the channel impulse response.

- 1 9. The method of claim 1, in which each correlator generates k sample,
2 where k is greater than one.